

CLAIMS

1. A composition comprising two or more of the following gonococcal antigens: (1) OmpA; (2) OmpH; (3) PPIase; (4) ngs41; (5) ngs117; and (6) App.
- 5 2. The composition of claim 1, wherein the OmpA protein comprises an amino acid sequence:
(a) having 70% or more identity to SEQ ID NO: 2; and/or (b) which is a fragment of at least 10 consecutive amino acids of SEQ ID NO: 2.
3. The composition of claim 1, wherein the OmpH protein comprises an amino acid sequence:
(a) having 70% or more identity to SEQ ID NO: 3; and/or (b) which is a fragment of at least 10 consecutive amino acids of SEQ ID NO: 3.
- 10 4. The composition of claim 1, wherein the PPIase protein comprises an amino acid sequence:
(a) having 70% or more identity to SEQ ID NO: 4; and/or (b) which is a fragment of at least 10 consecutive amino acids of SEQ ID NO: 4.
5. The composition of claim 1, wherein the Ngs41 protein comprises an amino acid sequence:
(a) having 70% or more identity to SEQ ID NO: 5; and/or (b) which is a fragment of at least 10 consecutive amino acids of SEQ ID NO: 5.
- 15 6. The composition of claim 1, wherein the Ngs117 protein comprises an amino acid sequence:
(a) having 70% or more identity to SEQ ID NO: 6; and/or (b) which is a fragment of at least 10 consecutive amino acids of SEQ ID NO: 6.
7. The composition of claim 1, wherein the App protein comprises an amino acid sequence:
(a) having 70% or more identity to SEQ ID NO: 7; and/or (b) which is a fragment of at least 10 consecutive amino acids of SEQ ID NO: 7.
- 20 8. A hybrid polypeptide of formula $\text{NH}_2\text{-A}\{-\text{X-L}\}_n\text{-B-COOH}$, wherein: each X is an amino acid sequence as defined in any one of claims 2 to 7; L is an optional linker amino acid sequence; A is an optional N terminal amino acid sequence; B is an optional C terminal amino acid sequence; and n is 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 or 15.
- 25 9. Nucleic acid encoding the hybrid polypeptide of claim 8.
10. A lipidated gonococcal OmpA protein.
11. A lipidated gonococcal PPIase protein.
12. A dimeric gonococcal OmpH protein.
- 30 13. A dimeric gonococcal PPIase protein.
14. A gonococcus strain, wherein one or more of the following gonococcal antigens is knocked out: (1) OmpA; (2) OmpH; (3) PPIase; (4) ngs41; (5) ngs117; and (6) App.